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09/645,753	08/24/2000	Hirofumi Takei	1232-4640	3625

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EXAMINER

WHIPKEY, JASON T

ART UNIT PAPER NUMBER

2612

DATE MAILED: 07/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/645,753

Applicant(s)

TAKEI, HIROFUMI

Examiner

Jason T. Whipkey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/23/04 & 11/22/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 13, 2005, has been entered.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 1-30 have been considered but are moot in view of the new grounds of rejection.

### ***Drawings***

3. The examiner acknowledges the proposed changes to figures 5 and 6 submitted on July 29, 2004. These drawings are approved. *Corrected drawings are required in response to this Office action in order to avoid abandonment of the application.*

Please note that the practice of submitting proposed drawing corrections was eliminated effective July 30, 2003. See 68 Fed. Reg. 38,611, 38,629 (June 30, 2003) (codified at 37 C.F.R. pt. 1.121(d)).

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***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-6, 9, 13-17, 20, 21, and 25-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art in view of Daugman (U.S. Patent No. 6,753,919).

Regarding claim 1, Applicant's Admitted Prior Art of figures 8, 10, and 12-14 teaches an image sensing apparatus comprising:

an image sensing device (CCD) that senses an optical image of an object and converting the optical image into an image signal to be used for photographing (CCD signal quantity);

a signal forming device that forms a signal used for focusing on the basis of the image signal obtained from said image sensing device (focus evaluation values a/b/c); and

a control device that emits light (fill-in light control signal) for assisting signal forming operation performed by said signal forming device (page 1, line 25, through page 2, line 6, of specification) and changes light-emission time ( $T_{on}$  and  $T_{off}$ ) in correspondence with a charge accumulation time (CCD readout) of

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said image sensing device when said signal forming device forms the signal for focusing (see figures 8, 10, 13 and 14).

The Admitted Prior Art is silent with regard to emitting light once each vertical scanning period to assist in the formation of a focusing signal.

Daugman discloses, as shown in Figure 3, an image acquisition device 105 coupled with an illuminator 130. In order to determine the best focusing value, "a sequence of image frames can be obtained that cycle through a range of focus distances strobed at the video frame-rate, and the focus score computed for each frame can enable the selection of the best focused frame within the sequence of frames" (see column 7, lines 52-56).

An advantage of focusing using light emitted once per vertical scanning period is that a rapid number of focusing settings may be attempted, thus preventing the waste of processing time (see column 8, lines 21-25), even if a subject is relatively dark. For this reason, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have Applicant's Admitted Prior Art emit light once each vertical scanning period to assist in the formation of the focusing signal.

As to claim 2, Applicant's admitted Prior Art figures 8, 10, 13 and 14 shows that the image sensing period of said image sensing means is a charge accumulation time (CCD readout) for the image signal to be used for photographing.

As to claim 3, Applicant's admitted Prior Art figures 8, 10, 13 and 14 shows that said control device emits the light (Ton and Toff) in synchronization with image sensing operation of said image sensing device.

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As to claim 4, Applicant's admitted Prior Art in figures 8, 10, 13 and 14 shows that said control device repeatedly emits the light at a period of image sensing operation of said image sensing device.

As to claim 5, Applicant's admitted Prior Art in figures 8, 10, 13 shows that said period corresponds to a vertical scanning period.

As to claim 6, Applicant's admitted Prior Art in figures 8, 10, 13 and 14 shows that said period corresponds to a period of a vertical synchronizing signal.

As to claim 9, Applicant's admitted Prior Art in figures 8, 10, 13 and 14 shows that said control device changes light-emission time of the light (Ton and Toff) in accordance with the charge accumulation time of said image sensing device.

Regarding claim 13, Applicant's admitted Prior Art of figures 8, 10 and 12-14 teaches an image sensing apparatus comprising:

an image sensing device (CCD) that senses an optical image of an object and converts the optical image into an image signal to be used for photographing (CCD signal quantity);

a signal forming device that forms a signal for focusing on the basis of the image signal obtained from said image sensing device (focus evaluation values);and

a control device that repeatedly emits light (fill-in light control signal) for assisting signal forming operation performed by said signal forming device (specification page 1 line 25 – page 2 line 6) at a time of charge accumulation operation of said image sensing device (see Figs. 8, 10, 13 and 14).

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The Admitted Prior Art is silent with regard to emitting light once each vertical scanning period to assist in the formation of a focusing signal.

Daugman discloses, as shown in Figure 3, an image acquisition device 105 coupled with an illuminator 130. In order to determine the best focusing value, “a sequence of image frames can be obtained that cycle through a range of focus distances strobed at the video frame-rate, and the focus score computed for each frame can enable the selection of the best focused frame within the sequence of frames” (see column 7, lines 52-56).

An advantage of focusing using light emitted once per vertical scanning period is that a rapid number of focusing settings may be attempted, thus preventing the waste of processing time (see column 8, lines 21-25), even if a subject is relatively dark. For this reason, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have Applicant’s Admitted Prior Art emit light once each vertical scanning period to assist in the formation of the focusing signal.

As to claim **14**, subject matter claimed in claim 14 can be found in claim 2.

As to claim **15**, subject matter claimed in claim 14 can be found in claim 3.

As to claim **16**, subject matter claimed in claim 14 can be found in claims 4 and 5.

As to claim **17**, subject matter claimed in claim 14 can be found in claims 4 and 6.

As to claim **20**, Applicant’s admitted Prior Art of figures 8, 10, 13 and 14 shows that said control device changes emitting the light in correspondence with a charge accumulation time of said image sensing device when said signal forming device forms the signal for focusing.

As to claim **21**, subject matter claimed in claim 14 can be found in claim 9.

Regarding claim **25**, claim 25 is a method claim corresponding to apparatus claim 1.

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Regarding claim **26**, claim 26 is a method claim corresponding to apparatus claim 13.

Regarding claims **27-28**, the subject matter in claims 27-28 can be found in claim 1 with the exception of a storage medium for providing a control program of an image sensing apparatus. Official Notice is taken that that it is well known in the art to store executable programs in a storage medium, which is loaded in an image sensing apparatus, such as an electronic camera for the purpose of facilitating downloading upgraded programs to the camera. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a storage medium for providing a control program of an image sensing apparatus so as to facilitate downloading of upgraded programs to the image sensing apparatus.

Regarding claims **29-30**, the subject matter in claims 29-30 can be found in claim 1 with the exception of a storage medium for providing a control program of an image sensing apparatus. Official Notice is taken that that it is well known in the art to store executable programs in a storage medium that is loaded in an image sensing apparatus, such as an electronic camera for the purpose of facilitating downloading upgraded programs to the camera. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a storage medium for providing a control program of an image sensing apparatus so as to facilitate downloading of upgraded programs to the image sensing apparatus.

6. Claims 7-8, 11, 18-19 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's admitted Prior Art in view of Daugman and further in view of Koshiishi (US #5,229,856).



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As to claims **7 and 18**, claims 7 and 18 differs from the Applicant's admitted Prior Art in that the claim further requires that said control device does not emit the light for a predetermined period at the period of the image sensing operation of said image sensing device. However, in order to provide a quality image having reduced flicker it is well known in the art to not emit a strobe light for a predetermined period at the period of an image sensing operation of an image sensing device, as taught in Koshiishi '856 (see Figs. 1 & 2, col. 5 lines 10-62). In light of the teaching from Koshiishi, it would have been obvious to one of ordinary skill in the art at the time the invention was made to not emit the light for a predetermined period at the period of the image sensing operation of said image sensing device taught in the Applicant's admitted Prior art so as to provide high quality images having reduced flicker.

As to claims **8 and 19**, claims 8 and 19 differs from the Applicant's admitted Prior Art in that the claim further requires that said control device does not emit the light at least for a predetermined period at the period of the image sensing operation of said image sensing device. However, in order to provide a quality image having reduced flicker it is well known in the art to not emit a strobe light at least for a predetermined period at the period of an image sensing operation of an image sensing device, as taught in Koshiishi '856 (see Figs. 1 & 2, col. 5 lines 10-62). In light of the teaching from Koshiishi, it would have been obvious to one of ordinary skill in the art at the time the invention was made to not emit the light for at least a predetermined period at the period of the image sensing operation of said image sensing device taught in the Applicant's admitted Prior art so as to provide high quality images having reduced flicker.

As to claims **11 and 23**, Koshiishi teaches that said control device fixes the light-emission time of the light to a predetermined period in a case where the image sensing period of said image sensing device exceeds a predetermined period (col. 6 line 8 – col. 7 line 11).

7. Claims 10 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's admitted Prior Art in view of Daugman and further in view of Fukuda al. (US #6,278,490).

As to claims **10 and 22**, claims 10 and 22 differs from the Applicant's admitted Prior Art in that the claim further requires that said control device increases the light emission time of the light as the image sensing period of said image sensing device increases. However, it is well known in the art to increase the light emission time of the light as the image sensing period of an image sensing device increases, as taught in Fukuda '490 (Figs. 6-7; col. 3 lines 25-34; col. 10 line 43 – col. 12 line 14). In light of the teaching from Fukuda, it would have been obvious to one of ordinary skill in the art at the time the invention was made to increase the light emission time of the light as the image sensing period of said image sensing device increases in the Applicant's admitted Prior art so as to provide an image output having an appropriate and wide dynamic range.

8. Claims 12 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's admitted Prior Art in view of Daugman and further in view of Yamamoto et al. (US #5,438,367).

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As to claims **12 and 24**, the claims differ from the Applicant's admitted Prior Art in that the claims further require that said control device changes light-emission intensity of the light in accordance with the image sensing period of said image sensing device. The limitation is well known in the art as shown in Yamamoto. In the same field of endeavor, in figure 1 Yamamoto '367 teaches a digital camera comprising an image sensor (CCD 4; col. 4 lines 35-44), a strobe device (col. 5 lines 22-260), and a CPU 5 for driving a focus lens (3) to an in-focus position based on distance data (col. 5 lines 3-12). For the purpose of providing optimum exposure amount of the image sensor, Yamamoto further teaches an amount-of-light-emission control circuit (30) for controlling an amount of strobe light emission according to distance data an F-number (col. 5 line 61 – col. 6 line 51). In light of the teaching from Yamamoto, it would have been obvious to one of ordinary skill in the art at the time the invention was made to change the light-emission intensity of the light according to the image sensing period of the image sensing device taught in the Applicant's admitted Prior art so as to provide optimum exposure for the image sensing device and providing proper image data for focusing purpose.

9. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inuiya (U.S. Patent No. 5,559,552) in view of Daugman.

Regarding **claim 31**, Inuiya discloses an image sensing apparatus (see Figure 1) capable of sensing an image using a fill-in light emission unit (flashing unit 98), comprising:

an image sensing unit (CCD 30) that obtains an image signal by  
photoelectric-converting an optical image of an object;

a determination unit that determines light-emission time of said fill-in light (the duration of the flash is determined prior to the opening of the CCD shutter; see column 6, lines 48-54);

a controller (68) that controls said fill-in light emission unit to emit light for the light-emission time determined by said determination unit in synchronization with start of charge accumulation time (see column 6, lines 48-50); and

a focus control unit (detector circuit 38) that performs focus control on the basis of the image signal obtained from said image sensing unit (see column 3, lines 14-19).

Inuiya is silent with regard to emitting light once each vertical scanning period.

Daugman discloses, as shown in Figure 3, an image acquisition device 105 coupled with an illuminator 130. In order to determine the best focusing value, "a sequence of image frames can be obtained that cycle through a range of focus distances strobed at the video frame-rate; and the focus score computed for each frame can enable the selection of the best focused frame within the sequence of frames" (see column 7, lines 52-56).

An advantage of focusing using light emitted once per vertical scanning period is that a rapid number of focusing settings may be attempted, thus preventing the waste of processing time (see column 8, lines 21-25), even if a subject is relatively dark. For this reason, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have Inuiya's system emit light once each vertical scanning period to assist in the formation of the focusing signal.

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*Conclusion*

10. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Whipkey, whose telephone number is (571) 272-7321. The examiner can normally be reached Monday through Friday from 9:00 A.M. to 5:30 P.M. eastern daylight time.

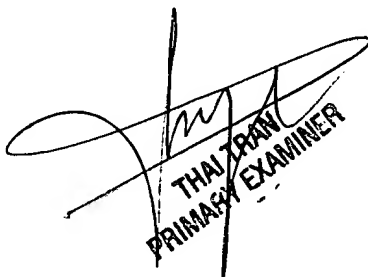
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thai Tran, can be reached at (571) 272-7382. The fax phone number for the organization where this application is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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July 25, 2005

  
THAI TRAN  
PRIMARY EXAMINER